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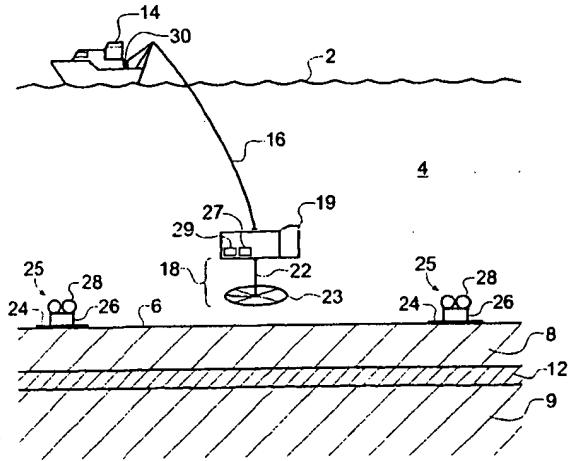
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- (71) Applicant (*for all designated States except US*): UNIVERSITY OF SOUTHAMPTON [GB/GB]; Highfield, Southampton, Hampshire SO17 1BJ (GB).
- (72) Inventors; and
- (75) Inventors/Applicants (*for US only*): MACGREGOR, Lucy, M. [GB/GB]; Centre for Enterprise & Innovation, University of Southampton, Highfield, Southampton, Hampshire SO17 1BJ (GB). RUST, Jennifer, L. [GB/GB]; Centre for Enterprise & Innovation, University of Southampton, Highfield, Southampton, Hampshire SO17 1BJ (GB). SINHA, Martin, C. [GB/GB]; Centre

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(54) Title: ELECTROMAGNETIC SURVEYING FOR HYDROCARBON RESERVOIRS



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(57) **Abstract:** An electromagnetic survey method for surveying an area of seafloor that is thought or known to contain a subterranean hydrocarbon reservoir, comprising obtaining a first survey data set with a vertical electric dipole (VED) antenna for generating vertical current loops and a second survey data set with a vertical magnetic dipole (VMD) antenna for generating horizontal current loops. In an alternative embodiment, the VMD antenna is dispensed with and the horizontal electromagnetic field is derived from the naturally occurring magnetotelluric (MT) electromagnetic field. In another alternative embodiment, the VED data is compared with a background geological model instead of VMD or MT data. The invention also relates to a survey apparatus comprising VED and VMD antennae, to planning a survey using this method, and to analysis of survey data taken using this survey method. The first and second survey data sets allow the galvanic contribution to the detector signals collected at a detector to be independently contrasted with the inductive effects. This is important to the success of using electromagnetic surveying for identifying hydrocarbon reserves and distinguishing them from other classes of structure.

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